

Claims

1. An inflator comprising a cylindrical inflator housing having one end closed and the other end opened, and a diffuser portion connected to the opening portion of the inflator housing and having a gas discharging hole, wherein a pressurized gas is charged in the inflator housing,

a flat plate-like rupturable plate which closes a gas discharging passage reaching the gas discharging hole and whose portion including the center is ruptured to open the gas discharging passage at the time of activation is provided inside the diffuser portion, and

inside the diffuser portion, an igniter for rupturing the rupturable plate is further provided at a position orthogonal to the axial direction of the inflator housing and an actuating portion of the igniter is provided at the opposite position to the center of the rupturable plate.

2. An inflator according to claim 1, wherein the rupturable plate and the igniter are arranged such that the central axis of the rupturable plate and the central axis of the actuating portion of the igniter are coincident with each other.

3. An inflator according to claim 1 or 2, wherein the diffuser portion has a gas introducing chamber for introducing the pressurized gas inside the inflator housing, and an igniter accommodating chamber for accommodating the igniter and the gas discharging hole, the respective chambers define the gas

discharging passage, and the pressurized gas inside the inflator housing is ejected from the gas discharging hole at the time of activation,

the gas introducing chamber is a space formed in the axial direction of the inflator housing and has an opening portion which is in communication with the inflator housing, and the igniter accommodating chamber is a space formed in the direction orthogonal to the axial direction of the inflator housing and has an opening portion which is in communication with the outside of the inflator before mounting the igniter, and

the rupturable plate is inserted from the opening portion of the igniter accommodating chamber and mounted in the igniter accommodating chamber side of the gas discharging passage which communicates the igniter accommodating chamber with the gas introducing chamber.

4. An inflator according to claim 1 or 2, wherein the diffuser portion has a gas introducing chamber for introducing the pressurized gas inside the inflator housing, an igniter accommodating chamber for accommodating the igniter and the gas discharging hole, the respective chambers define the gas discharging passage, and the pressurized gas inside the inflator housing is ejected from the gas discharging hole at the time of activation;

the gas introducing chamber is a space formed in the axial direction of the inflator housing and has an opening portion which is in communication with the inflator housing, and the igniter accommodating chamber is a space formed in the direction

orthogonal to the axial direction of the inflator housing and has an opening portion which is in communication with the outside of the inflator before mounting the igniter, and

a cylindrical cup with a bottom is inserted into the gas introducing chamber such that an opening portion thereof is directed to the inflator housing, and a side surface of the cup forms the rupturable plate which closes the gas discharging passage communicating the igniter accommodating chamber with the gas introducing chamber.

5. An inflator according to claim 1 or 2, wherein the diffuser portion has a gas introducing chamber for introducing the pressurized gas inside the inflator housing, an igniter accommodating chamber for accommodating the igniter and the gas discharging hole, the respective chambers define the gas discharging passage, and the pressurized gas inside the inflator housing is ejected from the gas discharging hole at the time of activation,

the gas introducing chamber is a space formed in the direction orthogonal to the axial direction of the inflator housing and has an opening portion which is in communication with the inflator housing, and the igniter accommodating chamber is a space formed in the direction orthogonal to the axial direction of the inflator housing and has an opening portion which is in communication with the outside of the inflator before mounting the igniter, and

the rupturable plate is inserted from the gas introducing chamber and is mounted in the gas introducing chamber side of

the gas discharging passage which communicates the igniter accommodating chamber with the gas introducing chamber.

6. An inflator according to claim 1 or 2, wherein the diffuser portion has a gas introducing chamber for introducing the pressurized gas inside the inflator housing, an igniter accommodating chamber for accommodating the igniter and the gas discharging hole, the respective chambers define the gas discharging passage, and the pressurized gas inside the inflator housing is ejected from the gas discharging hole at the time of activation,

the gas introducing chamber is a space formed in the axial direction of the inflator housing and has an opening portion which is in communication with the inflator housing, and the igniter accommodating chamber is a space formed in the direction orthogonal to the axial direction of the inflator housing and has an opening portion which is in communication with the outside of the inflator before mounting the igniter, and

a substantially cylindrical retainer for holding the igniter is inserted and fixed inside the igniter accommodating chamber, and

the rupturable plate is mounted from the outside of an opening portion in one end of the retainer positioned in the gas discharging passage communicating the igniter accommodating chamber with the gas introducing chamber.

7. An inflator according to claim 1 or 2, wherein the diffuser portion has a gas introducing chamber for introducing the pressurized gas inside the inflator housing, an igniter

accommodating chamber for accommodating the igniter and the gas discharging hole, the respective chambers define the gas discharging passage, and the pressurized gas inside the inflator housing is ejected from the gas discharging hole at the time of activation,

the gas introducing chamber is a space formed in the axial direction of the inflator housing and has an opening portion which is in communication with the inflator housing, and the igniter accommodating chamber is a space formed in the direction orthogonal to the axial direction of the inflator housing and has an opening portion which is in communication with the outside of the inflator before mounting the igniter, and

the rupturable plate is fixed to one surface of an annular fixture, and the annular fixture is fixed to the gas discharging passage, which communicates the igniter accommodating chamber with the gas introducing chamber, such that the one surface is directed to the gas introducing chamber.

8. An inflator according to claim 1 or 2, wherein the diffuser portion has a gas introducing chamber for introducing the pressurized gas inside the inflator housing, an igniter accommodating chamber for accommodating the igniter and the gas discharging hole, the respective chambers define the gas discharging passage, and the pressurized gas inside the inflator housing is ejected from the gas discharging hole at the time of activation,

the gas introducing chamber is a space formed in the axial direction of the inflator housing and has an opening portion

which is in communication with the inflator housing and an opening portion which is in communication with the outside of the inflator, before mounting the rupturable plate, and the igniter accommodating chamber is a space formed in the direction orthogonal to the axial direction of the inflator housing and has an opening portion communicating with the outside of the inflator before mounting the igniter, and

the rupturable plate is inserted from the opening portion of the gas introducing chamber which is in communication with the outside of the inflator and is mounted in the gas introducing chamber side of the gas discharging passage which communicates the igniter accommodating chamber with the gas introducing chamber, and the opening portion of the gas introducing chamber which is in communication with the outside of the inflator is closed by a lid portion.

9. An inflator according to any one of claims 1 to 8, wherein a lead wire for transmitting an operation signal to the igniter is connected to the igniter via a connector, and a direction in which the lead wire extends is different from the mounting direction of the air bag, but the same direction as the axial direction of the inflator housing.

10. An inflator according to any one of claims 1 to 9, which comprises a cylindrical housing which is opened at one end and closed at the other end, is provided in the vicinity of the closed surface with a gas outflow chamber having a second gas discharging hole, and the gas outflow chamber is connected to a gas discharging hole at the opening portion of the

cylindrical housing and is formed in the axial direction of the inflator housing.

11. An inflator according to claim 10, wherein plural second gas discharging hole are formed on a side surface of a gas outflow passage at equal intervals.

12. An air bag system comprising activation signal-outputting means including an impact sensor and a control unit, and a module case accommodating an inflator according to any one of claims 1 to 11 and an air bag.